

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

REC'D 06 JUL 2004

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Applicant's or agent's file reference 11352(PCT59)	<b>FOR FURTHER ACTION</b>	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416).
International Application No. <b>PCT/IN2003/000383</b>	International Filing Date (day/month/year) 5 December 2003	Priority Date (day/month/year) 5 December 2003
International Patent Classification (IPC) or national classification and IPC Int. Cl. <sup>7</sup> C07D 498/18		
Applicant BIOCON INDIA LIMITED et al		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 3 sheets, including this cover sheet.  
☒ This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheet(s).

3. This report contains indications relating to the following items:
  - I ☒ Basis of the report
  - II ☐ Priority
  - III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
  - IV ☐ Lack of unity of invention
  - V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
  - VI ☐ Certain documents cited
  - VII ☐ Certain defects in the international application
  - VIII ☐ Certain observations on the international application

Date of submission of the demand 22 March 2004	Date of completion of the report 24 June 2004
Name and mailing address of the IPEA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929	Authorized Officer  IAN DOWD Telephone No. (02) 6283 2273

**I. Basis of the report****1. With regard to the elements of the international application:\***

- ☐ the international application as originally filed.
- ☒ the description, pages 2-7, as originally filed,  
pages , filed with the demand,  
pages 1, received on 18 June 2004 with the letter of 16 June 2004
- ☒ the claims, pages 9-10, as originally filed,  
pages , as amended (together with any statement) under Article 19,  
pages , filed with the demand,  
pages 8, received on 18 June 2004 with the letter of 16 June 2004
- ☐ the drawings, pages , as originally filed,  
pages , filed with the demand,  
pages , received on with the letter of
- ☐ the sequence listing part of the description:  
pages , as originally filed  
pages , filed with the demand  
pages , received on with the letter of

**2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.**

These elements were available or furnished to this Authority in the following language which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rules 55.2 and/or 55.3).

**3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:**

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

**4. ☐ The amendments have resulted in the cancellation of:**

- ☐ the description, pages
- ☐ the claims, Nos.
- ☐ the drawings, sheets/fig.

**5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\***

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. Statement**

Novelty (N)	Claims 1-10	YES
	Claims	NO
Inventive step (IS)	Claims 1-10	YES
	Claims	NO
Industrial applicability (IA)	Claims 1-10	YES
	Claims	NO

**2. Citations and explanations (Rule 70.7)**

This report is based on the documents cited in the International Search Report.

D1 US 5 508 398 A1  
D2 US 5 616 595 A1  
D3 US 4 734 492 A1  
D4 J. Antibiot (Tokyo) 1999 May; 52(5): 466-73  
D5 US 6 576 135 B1  
D6 US 6 492 513 B1

**Novelty and Inventive Step**

None of the documents cited impinge on the application for the purposes of novelty or inventive step.

**Industrial Applicability**

All claims satisfy the requirements of industrial applicability.

5 **TITLE OF THE INVENTION**

PROCESS FOR THE PURIFICATION OF MACROLIDES

**FIELD OF THE INVENTION**

This invention relates to a process for purification of  
macrolides.

10 **BACKGROUND OF THE INVENTION**

A compound, 15,19-Epoxy-3H-pyrido[2,1-  
c][1,4]oxaazacyclotricosine-1,7,20,21(4H,23H)-tetrone,  
5,6,8,11,12,13,14,15,16,17,18,19,24,25, 26,26a-hexadecahydro-  
5,19-dihydroxy-3-[(1E)-2-[(1R,3R,4R)-4-hydroxy-3-  
15 methoxycyclohexyl]-1-methyl ethenyl]-14,16-dimethoxy-  
4,10,12,18-tetramethyl-8-(2-propenyl)-,  
(3S,4R,5S,8R,9E,12S,14S,15R,16S,18R,19R,26aS), also known as  
FK506 as well as tacrolimus disclosed by EP 184162 and US  
4,894,366 is useful as an immunosuppressant. Another compound,  
20 15,19-Epoxy-3H-pyrido[2,1-c][1,4]oxaazacyclotricosine-1,7,20,21  
(4H,23H)-tetrone,8-ethyl-  
5,6,8,11,12,13,14,15,16,17,18,19,24,25,26, 26a-hexadecahydro-  
5,19-dihydroxy-3-[(1E)-2-[(1R,3R,4R)-4-hydroxy-3-  
methoxycyclohexyl]-1-methylethenyl]-14,16-dimethoxy-4,10,12,18-  
25 tetramethyl-, (3S,4R,5S,8R,9E,12S,14S, 15R,16S,18R,19R,26aS)-,  
also known as immunomycin as well as FK 520, disclosed in EPO  
Publication No. 0184162 is also useful as an immunosuppressant.  
Many other derivatives of these compounds as well as structural  
analogues have immunosuppressant property.

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